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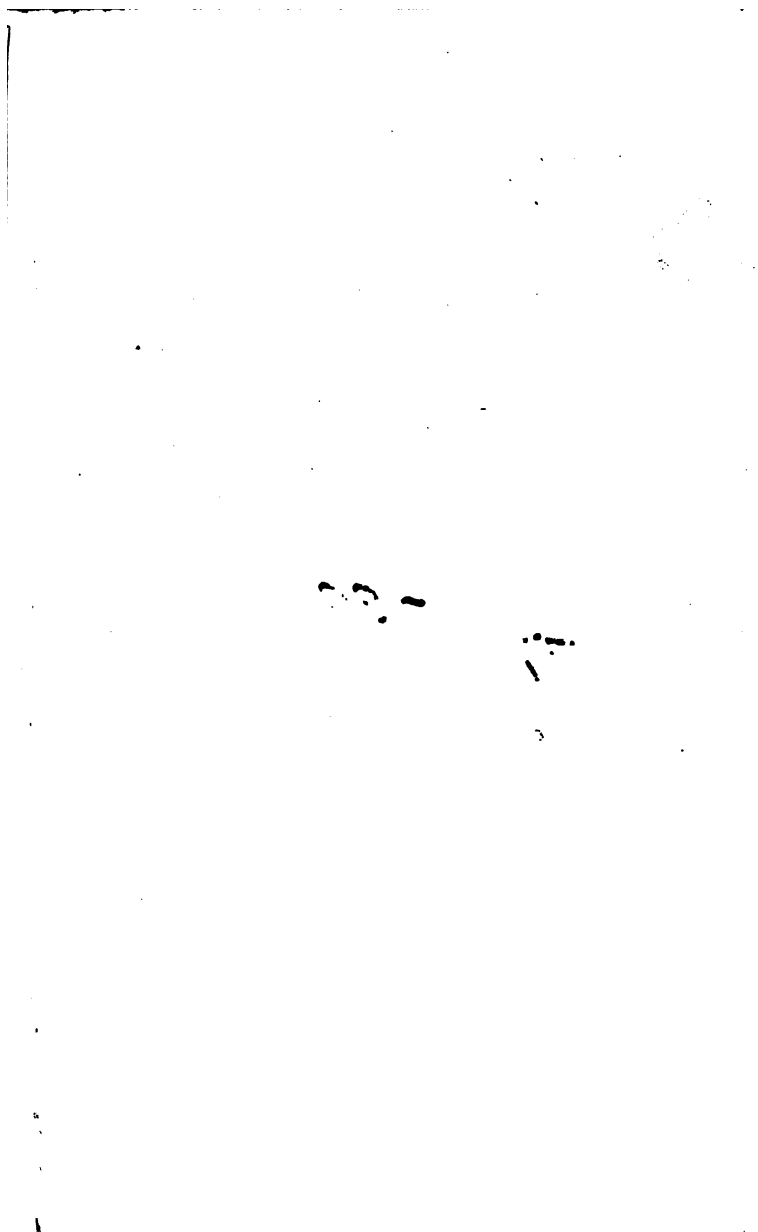
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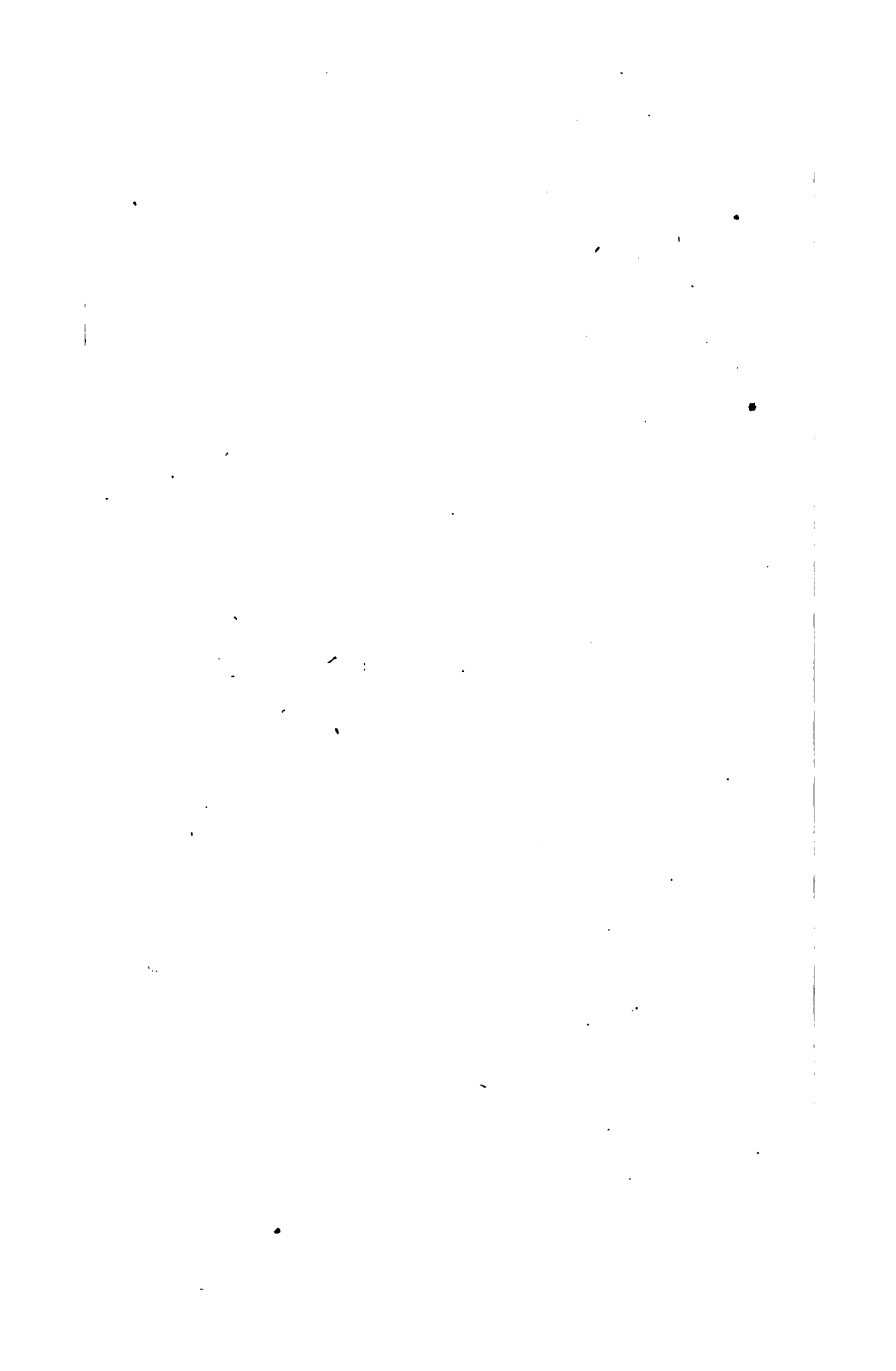
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THE
PRACTICAL DYER'S
ASSISTANT:

CONTAINING UPWARDS OF

ONE HUNDRED AND FIFTY RECEIPTS FOR DYEING

SILKS, WOOLLENS, AND COTTONS,

WITH

DIRECTIONS FOR MAKING SPIRITS

FOR THE

DIFFERENT FABRICS AND COLOURS,

INCLUDING

A NEW METHOD FOR DYEING SHOTS.

BY JOHN M. THOMSON, ESQ.

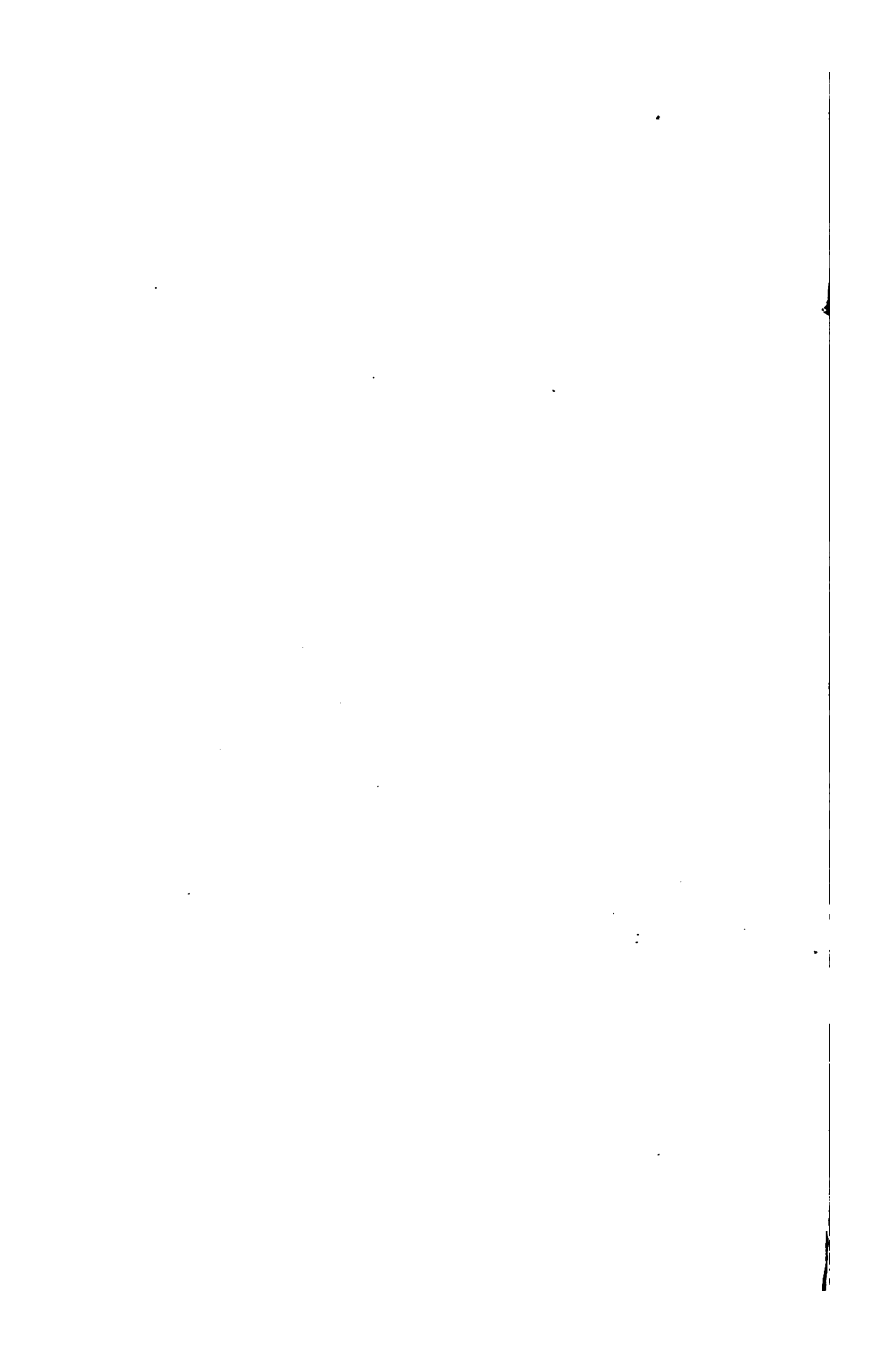


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THE

PRACTICAL DYER'S ASSISTANT.

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- No. 94 for Vat No. 316, read 128.
 No. 99 Limawood, for Dyeing 1 lb., read 5 oz. instead of 4.
 No. 126, the word Wood occurs several times in this Receipt, it should be Woad.
 No. 146, last line but one for Nitric Acid, read Nitre.
 No. 147 for No. 145, read 146.
 No. 152, third line from bottom for 60°, read 160° Fahrenheit.
 No. 158 for Vat No. 130, read 128.

THE PRACTICAL DYER'S ASSISTANT.

No. 1.

JET BLACK FROM NITRO-SULPHATE OF IRON.

For 200 yards or 16 lbs.*

Prepare in a hot solution of Nitro-Sulphate of Iron, 5° Twaddell, 150° Fahrenheit; work thirty minutes in this; lift, and wash well in 3 warm waters; then boil 18 lbs. of Fustic; put off the boil; enter, and winch for thirty minutes; lift; boil 16 lbs. Logwood, put off the boil, and decant the clear liquor into a large tub; add 1 lb. of white Soap; enter, and winch for thirty or forty minutes in this; lift; wash in 2 waters, and you will have a brilliant Jet Black.

* A pound of Silk woven into common Sarsenet, measures about 13 yards: this multiplied by 16, gives 208; or for a more convenient standard, we may calculate 200 yards at 16 lbs., 100 at 8 lbs., and so on.

No. 2.

JET BLACK FROM NITRATE OF IRON.

For 200 yards.

After being cleaned, prepare in a cold solution of Nitrate of Iron, 5° Twaddell; * thirty minutes in this; lift; boil 14 lbs. Fustic; put off the boil; enter, and winch thirty minutes; lift; wash in 3 waters, blood-warm; then boil 16 lbs. Logwood; decant like No. 1; give the same quantity of Soap, and finish in the same way.

* This is strong enough for light Silks, 4° or 4½° will do for dark and dipping Silks.

No. 3.

BLACK FROM SULPHATE OF IRON.

For 200 yards.

After being cleaned or scalded, discharge in a hot Vitriol sour; a cold and then a warm water out of the sour; run through another scald, and 2 warm waters; then boil 14 lbs. Fustic; put off the boil; winch 30 minutes, and lift for saddening; make

up a solution with some of the Fustic left in the last process, and 1 lb. Copperas; winch in this for half an hour; wash in 3 waters; dye with 16 lbs. Logwood, and 1 lb. of Soap, like No. 1.

No. 4.

NEW METHOD FOR DYEING SHOTS.

When Satins, Satinetsts, Sarsenets, or Silks, of any kind, are found to contain Shots, that is, warp and weft of different qualities, they must be prepared as follows:—

For 100 yards.

Dissolve $1\frac{1}{2}$ lbs. Salt of Tartar, in a copper containing 150 gallons boiling water; winch in this one hour; lift, and wash in 2 waters; and then prepare for any colour. If, after dyeing Black, Brown, or any colour, the silk is found to contain a shot of

different silk, it must be discharged to the bottom, and put through the stuff as directed above; then prepare a new, for whatever colour required.

No. 5.

CINNAMON BROWN.

For 100 yards.

For 10 yards.

Boil 12 lbs. Fustic.

1½ lbs. nearly.

3 lbs. Ground Madder.

4¾ oz.

2 lbs. Barwood.

3 oz.

Cool to 200° Fahrenheit, then enter, and winch 20 minutes; air out, and repeat; then, with a little of the liquor in another dish, sadden to pattern with 4 or 5 oz. Copperas, 1 or 2 shots; then wash in 2 waters, and dry.

No. 6.

OLIVE BROWN.

For 100 yards.

For 10 yards.

Boil 10 lbs. Fustic.

1 lb.

2 lbs. Logwood.

3½ oz.

6 oz. Cudbear.

2½ oz.

Cool to 200° Fahrenheit; then enter, and winch for 20 minutes; air out; repeat; then sadden to pattern with 4 oz. Copperas; wash and dry.

No. 7.

FRENCH BROWN.

Prepare in a hot solution of Alum, for 10 or 12 hours; lift, and wash in 2 waters; boil or scald.

For 100 yards,

For 10 yards.

10 lbs. Limawood.

1 lb.

3 lbs. Ground Fustic.

4¾ oz.

Decant the clear of both liquors into another dish; enter, and winch for 30 minutes; air out, and repeat;

if dark enough, wash in 2 waters, and dry. Common Brown is done in this way by adding a little Logwood.

Note.—In preparing this and the following colour, a little Copperas is sometimes used along with the Alum; when done in this manner, raise slightly with Muriate of Tin, No. 139.

No. 8.

CLARET.

Prepare with Alum like the last; boil or scald.

For 100 yards.

For 10 yards.

12½ lbs. Limawood.

1½ lbs.

2 lbs. Logwood.

3¼ oz.

Decant the clear of both liquors into a tub of sufficient size; enter, and winch for 30 minutes; air out, and repeat; when dark enough, wash and dry.

Note.—In dyeing the two last, they ought to get two liquors, or the liquor at twice, as one will hardly make the colour as full as it ought to be.

No. 9.

PALE BLUE.

For 100 yards.

3 oz. Paste or Extract of Indigo.

6 oz. Tartaric Acid.

For 10 yards.

5 drams nearly.

9½ do. do.

Sour first in a hot solution of Sulphuric Acid, (about 1½ gills,)—lift, and wash in one water. Prepare the Paste and dissolve the Acid in a little hot water; then take a copper or stoneware crock of sufficient size, fill it nearly full of water, 110° Fahrenheit; put in the Paste, and 5 parts of the Tartaric Acid; winch in this 15 minutes; lift; wash in cold water; harden with the part of Tartaric not used; lift, and dry.

Note.—In dyeing printed Silks, containing Black or any colour you wish to retain, they must not be soured in dyeing, and use as little raising as possible. To prepare Paste or Extract of Indigo, every particle must be well broken (or it will stain the silk) with a pallet knife, or the back of a table-spoon, after which pour on a little boiling water; stir it up, and let it settle for a little before using.

No. 10.

ROYAL BLUE.

Prepare in a solution of Nitrate of Iron, 3° Twaddell, 100° Fahrenheit; and for every pound of Prussiate used in dyeing, add as much of the Crystals of Tin (dissolved in hot water) to the preparation; work in this till the silk turns a light buff colour; lift, and wash in 1 water; after which,

For 100 yards,

Dissolve 4 lbs. Prussiate of Potash in a little boiling water; put this into a copper containing 80 gallons water, 120° Fahrenheit; add $1\frac{1}{2}$ gills Sulphuric or Muriatic Acid; enter in this; winch 15 minutes; lift; 1 water; run again through the preparation; add 2 gills Sulphuric Acid to the Prussiate; repeat in it, and if not dark enough, lift, and add a little Nitrate of Iron; after getting it to the required shade, give 2 waters; then harden in a solution of Alum; and dry in a hot stove.

No. 11.

MAZARINE BLUE

Is done in the same manner as No. 10, and finished by giving a quick run upon a weak Purple Vat; if the Vat be strong, take out a little of the liquor, and put it into a sufficient quantity of water; work in this till the required shade is got, then wash and dry.

No. 12.

PEA GREEN.

For 100 yards.

10 oz. Extract of Indigo.

2½ lbs. Ebony.

1 lb. Alum.

For 10 yards.

1 oz.

4 oz.

1½ oz.

Sour first; wash in 1 water; boil or scald the Ebony; decant the clear into another dish, and add the Extract of Indigo and Alum; enter in this, and winch for 10 or 15 minutes; wash in 1 water.

No. 13.

COMMON PALE GREEN.

For 100 yards.

For 11 yards.

1 lb. 2 oz.	Extract of Indigo.	2 oz.
1 lb.	Ebony.	1 $\frac{3}{4}$ oz.
1 lb.	Alum.	1 $\frac{3}{4}$ oz.
1 gill	Sulphuric Acid.	1 $\frac{1}{2}$ oz.

Wrought the same as No. 12.

No. 14.

GRASS GREEN.

For 100 yards.

For 10 yards.

Boil 7 $\frac{1}{2}$ lbs.	Fustic.	12 oz.
Add 2 lbs.	Extract of Indigo.	3 oz. 3 drams.
2 lbs.	Alum.	3 oz. 3 do.
1 $\frac{1}{2}$ gill	Sulphuric Acid.	1 $\frac{1}{2}$ oz.

Boil the Fustic first ; then add the Extract of Indigo, Alum, and Acid ; put off the boil ; enter and winch till you get the shade required ; if not blue enough, give more Extract of Indigo ; if not yellow enough, more Fustic. The same may be done with Nos. 12 and 13.

No. 15.

MYRTLE GREEN.

For 100 yards.

10 lbs. Fustic.

2 lbs. Logwood.

2 lbs. Extract of Indigo.

5 oz. Bluestone.

For 10 yards.

1 lb.

3 oz. 3 drams.

3 oz. 3 do.

 $\frac{1}{2}$ oz.

Boil the Logwood and Fustic together; put off the boil; enter; winch 20 minutes; air out and repeat; raise with 3 oz. Bluestone dissolved in the boiler; then give the Extract of Indigo; 1 water; rince in the remaining 2 oz. Bluestone; harden in a solution of Alum, and dry.

No. 16.

OLIVE GREEN.

For 100 yards.

10 lbs. Fustic.

2 lbs. Logwood.

10 oz. Camwood.

For 10 yards.

1 lb.

3 oz. 8 drams.

1 oz.

Boil altogether for 30 minutes; put off the boil; enter and winch for 20 minutes; air out and repeat;

sadden with 3 or 4 oz. Copperas in the same liquor, or with a little of the liquor in another dish; when the required shade is got, wash and dry.

No. 17.

DRAB.

For 100 yards.

Boil 4 lbs. Fustic, and

6 oz. Logwood.

2½ oz. Cudbear.

1¼ oz. Copperas.

For 10 yards.

6½ oz.

½ oz. fully.

¼ oz.

2 drams fully.

Cool to 200° Fahrenheit; enter; winch 20 minutes; air out; repeat; then take a little of the liquor out of the boiler, dissolve the Copperas, reduce it to handling heat with water, and give 1 or 2 shots through it as the pattern requires; 1 water out of the saddening; then give a warm, but weak sour, to clear the colour; wash in 2 waters, and dry.

Note.—Before using Cudbear, it must always be drenched with a little hot water, to the consistency of paste; then scald or boil it as occasion may require.

No. 18.

FAWN.

For 100 yards.

For 10 yards.

4 lbs. Fustic.

$6\frac{1}{2}$ oz.

5 oz. Cudbear.

$\frac{1}{2}$ oz.

$1\frac{1}{2}$ oz. Copperas.

$1\frac{1}{2}$ drams.

Done in the same manner as No. 17.

No. 19.

STONE.

For 100 yards.

For 10 yards.

8 lbs. Fustic.

nearly 5 oz.

$7\frac{1}{2}$ oz. Logwood.

$\frac{3}{4}$ oz.

$2\frac{1}{2}$ oz. Cudbear.

$\frac{1}{4}$ oz.

2 oz. Copperas.

nearly $\frac{1}{2}$ oz.

Done in the same manner as No. 17.

No. 20.

SLATE.

For 100 yards.

For 10 yards.

8 oz. Cudbear.

1 oz. nearly.

2 lbs. Logwood.

3 oz. 3 drams.

1 lb. Tartar.

1½ oz. fully.

Bottom with the Cudbear like No. 30; lift; boil the Logwood; decant into a tub of sufficient size; enter and winch in this for 15 minutes; lift and raise with the Tartar at twice, then wash and dry.

No. 21.

PRIMROSE.

For 200 yards.

For 10 yards.

1½ lb. Barks.

1½ oz.

1 pint Muriate of Tin.

1½ oz.

Scald the bark, decant the clear, add the Muriate of Tin; enter and winch 15 minutes; then wash in 2 waters and dry.

No. 22.

YELLOW.

For 200 yards.

For 10 yards.

3 lbs. Barks.

2½ oz.

1½ pint Muriate of Tin.

2 oz. fully.

Done in the same manner as No. 21.

No. 23.

STRAW.

For 200 yards.

For 10 yards.

8 oz. Annatto.

6½ drams.

1½ lb. Barks.

1¼ oz.

1 pint Muriate of Tin.

1½ oz.

Give the Annatto on the bottom 212° Fahr.; 1 water out, and then give the Barks and Muriate of Tin, same heat.

Note.---Before using Annatto, it must be boiled with half its weight of American Ashes, in the least possible quantity of soft water. This note applies to every process where Annatto is used.

No. 24.

BUFF.

For 200 yards.

For 10 yards.

2 lbs. Annatto.

fully $1\frac{1}{2}$ oz.

3 gills Vitriol.

 $1\frac{1}{2}$ oz.

Give the Annatto at 212° Fahrenheit; when full enough, lift; wash in 2 waters; then raise with the Vitriol.

No. 25.

CREAM COLOUR.

For 200 yards.

For 10 yards.

Boil 12 oz. Annatto.

9 $\frac{1}{2}$ drams.

2 gills Vitriol.

1 oz.

Done in the same manner as No. 24.

No. 26.

GIRAFFE.

For 200 yards.

12 oz. Annatto.

4 lbs. Fustic.

8 oz. Madder.

4 oz. Cudbear.

For 10 yards.

9½ drams.

6½ oz.

6½ drams.

3½ drams.

Bottom with the Annatto, 212° Fahrenheit; wash in 1 water; boil the Fustic, Madder, and Cudbear together; put off the boil, and enter; winch 15 minutes; if not full enough, air out and repeat; then wash and dry.

No. 27.

SALMON COLOUR.

For 200 yards.

1½ lb. Annatto.

5 oz. Cudbear.

For 10 yards.

1½ oz.

4 drams.

Boil the Annatto; then add the Cudbear; put off the boil; enter and winch thirty minutes; wash in 2 waters; then dry.

No. 28.

ORANGE.

For 100 yards.

For 10 yards.

2 $\frac{1}{4}$ lbs. Annatto.1 $\frac{3}{4}$ oz.1 $\frac{1}{2}$ lb. Bark.1 $\frac{1}{2}$ oz.

1 pint Muriate of Tin.

1 $\frac{1}{2}$ oz.

Give a good body of Annatto, 212° Fahrenheit; wash in 1 water; then top with the Bark and Muriate of Tin.

No. 29.

AMBER.

For 200 yards.

For 10 yards.

1 $\frac{1}{2}$ lb. Annatto.nearly 1 $\frac{1}{2}$ oz.1 $\frac{1}{2}$ lb. Bark.2 $\frac{1}{2}$ oz.1 $\frac{1}{2}$ pint Muriate of Tin.

2 oz.

Bottom with the Annatto, and top with the Bark and Muriate of Tin, same as No. 28.

No. 30.

PEACH.

For 200 yards.

For 10 yards.

3 lbs. Cudbear.

2½ oz.

8 oz. Pearl Ashes.

nearly ½ oz.

Boil the Cudbear in a copper; put off the boil; enter; winch for thirty minutes; lift, and put in the Pearl Ashes; return for 10 minutes; when blue enough, lift, wash, and dry.

No. 31.

FRENCH WHITE.

For 200 yards.

For 10 yards.

10 oz. Cudbear.

½ oz.

3 oz. Pearl Ashes.

2½ drams.

Done in the same manner as No. 30. Soap or Soda may be used for these two colours, instead of Pearl Ashes.

No. 32.

PINK.

For 200 yards.

For 10 yards.

Bottoming, 2 gills Blue Archil.* $\frac{1}{2}$ oz.Dyeing, $2\frac{1}{2}$ lbs. Safflower, 2 oz.Raising, 10 oz. Tartaric Acid. $\frac{1}{2}$ oz.

Put the Archil into 100 gallons boiling water; winch in this 15 minutes; lift; bleed; then refine the Safflower with Cotton; make up a Safflower liquor of 100 gallons; enter and winch 15 minutes; lift; put in half the raising; return and winch 10 minutes; lift again and add the other half of the raising; return for 10 minutes more; then wash in 1 water; harden with a little Tartaric in another, and dry.

Rose colour may be made in this way, by giving more stuff.

* There is no necessity for bottoming with Archil, because as good if not a superier Pink is made with

Safflower alone; and it is only given here to show how it is to be done.

Steep the $2\frac{1}{2}$ lbs. Safflower all night in water; in the morning rub the cakes between the hands, so that it may be all broken; then put it into a bag or close sieve; stand with it under a good run of water until the particles are all disengaged from each other, and purged of all impurities; then put 20 or 30 gallons of water into a large tub, add $\frac{1}{2}$ lb. Soda dissolved, and put in the Safflower; stir it up, and let it bleed thirty or forty minutes; then strain it through the bag into a second tub; if not well enough bled, repeat in the first tub with a little more Soda.

To refine Safflower after being bled,—immerse 3 or 4 lbs. cotton yarn or cloth in it; in 10 minutes lift, and add a little Tartaric; return for 10 minutes; add a little Tartaric again; return for 10 minutes more; lift, and add the Tartaric a third time, at which time it must do no more than taste slightly sour; then wash in 2 or 3 waters, after which it must be bled in a tub of clean water with a little Soda; then make up this liquor with water for dyeing.

No. 33.

LIMAWOOD PINKS

Are done upon the Vat No. 132.

No. 34.

ROSE COLOUR WITH COCHINEAL.

For 200 yards.

For 10 yards.

Bottoming,	3 gills	Blue Archil.	$\frac{3}{4}$ oz.
Preparation	2 lbs.	Tartar.	nearly $\frac{3}{4}$ oz.
	1 quart	Scarlet Spirits.	$2\frac{1}{2}$ oz.
Dyeing,	2 lbs.	Cochineal.	fully $1\frac{1}{2}$ oz.

Bottom with Archil, like No. 32; lift; dissolve the Tartar, and put it and the Spirits into 100 gallons water; winch in this for some time; then let it lie 12 hours (if this preparation is made hot, 3 or 4 hours will do); pound, and then boil the Cochineal; put off the boil; lift out of the preparation, and enter; winch till the liquor cools, and the colour will be full enough,

No. 35.

SCARLET WITH COCHINEAL.

For 200 yards.

For 10 yards.

Bottoming,	2 lbs.	Annatto.	fully $1\frac{1}{2}$ oz.
Preparation	$1\frac{1}{2}$ lb.	Tartar.	$1\frac{1}{4}$ oz.
	$1\frac{1}{2}$ quart	Scarlet Spirits.	$3\frac{1}{2}$ oz.
Dyeing,	3 lbs.	Cochineal	$2\frac{1}{2}$ oz.

Bottom with the Annatto, 212° Fahrenheit; winch 15 or 20 minutes, and it should be a full Orange; then give the preparation and Cochineal, same as No. 34.

This colour may be done by giving the Annatto same as No. 34, and dyeing on the Crimson Vat No. 130.

No. 36.

PONÇOE

Requires less Annatto on the bottom than No. 35; but the same quantity of Spirits and Tartar in preparation, and as much Cochineal in dyeing.

No. 37.

FAST CRIMSON.

For 200 yards.

For 10 yards.

Bottoming,	2 lbs.	Cudbear.	1½ oz. fully.
Preparation	1½ lb.	Tartar.	1¼ oz.
	1½ quart	Scarlet Spirits.	3½ oz.
Dyeing,	2½ lbs.	Cochineal.	2 oz.

Boil or scald the Cudbear; winch in this 30 minutes; then prepare and dye, like No. 35.

Note.—Nos. 34, 35, 36, and 37, are the only colours in Silk, Woollen, or Cotton, that are not washed out of the preparation.

No. 38.

LIMAWOOD CRIMSON.

For 200 yards.

Prepare with Alum; wash in 2 waters; boil or scald 16 lbs. Limawood; decant the clear liquor; enter and winch in this 20 minutes; lift; 1 water; raise in the

Rose colour Vat No. 132 ; or, to preserve this Vat for Light Silks alone, raise in another dish with Double Muriate of Tin, 5° Twaddell ; wash in 2 waters, and dry.

No. 39.

RUBY.

Same as No. 38, but is blued, after being raised, with a little Soda or Urine in warm water.

No. 40.

PURPLE.

The best Purples are made upon the Vat No. 129. For a Red shade, wash in 2 cold waters ; for a Blue shade, wash in 2 hot waters.

Another but inferior method is, to prepare with Alum, dye with Logwood, and raise with Double Muriate of Tin ; wrought like No. 38.

No. 41.

ROYAL BLUE PURPLE.

For whatever depth of colour required, winch upon the Purple Vat No. 129; wash in 2 warm waters; then put a little Extract of Indigo into a tub of cold water; add a little Sulphuric Acid; enter and work in this till you get the required shade, then wash in cold water, and dry.

No. 42.

LILAC.

The best Lilac is dyed upon the Vat No. 133; when without one, the following is the simplest method:—

10 gallons Water.

1 pint Purple Liquor No. 129.

Add raw Muriatic Acid till the glass stands at 6° Twaddell; enter in this, and work till you get the required shade; if too light, add more Purple liquor, wash in 2 warm waters, and dry.

No. 43.

LAVENDER.

Same as No. 42, by adding a little neutralized Extract of Indigo. Silver Grey gets less stuff than Lavender.

Note.—Break 4 oz. of Extract of Indigo; dilute it with 2 quarts of hot water, and add half an ounce of Soda, to destroy or neutralise whatever acid the Extract contains; after stirring it well up, let it stand for two days, then strain it for use.

SECTION II.
WOOLLEN DYEING.

No. 44.

JET BLACK.

For 50 lbs.

Prepare with $2\frac{1}{4}$ lbs. Chrome; boil half an hour, and
wash in 2 waters.

Dye with 20 lbs. Logwood, and
2 lbs. Fustic.

Boil half an hour; 1 water, then a slight sour,
moderately warm; 1 cold water, and finish out of a
warm one, softened with a little Urine.

Note.—A pound of wool woven into common
Merino measures about 3 yards, common Moreen
about 2 yards.

No. 45.

FAST BLACK.

For 50 lbs.

Prepare with 2 lbs. Chrome,
1 lb. Tartar, and
1 quart Muriate of Tin; boil 1 hour,
and wash in 2 waters.

Dye with 25 lbs. Logwood, and
3 lbs. Fustic.

Boil 30 minutes, lift, add
1 pint Vitriol.

Return for 10 minutes, then wash and dry.

No. 46.

FAST BLUE BLACK.

Same as No. 45, but without Fustic.

No. 47.

CINNAMON BROWN.

For 50 lbs.

- 8 lbs. Fustic.
- 2 lbs. Madder.
- 10 oz. Cudbear.
- 1 lb. Tartar.
- 2 lbs. Alum.

Give 2 runs, and sadden with 3 or 4 oz. of Copperas.

No. 48.

FRENCH BROWN.

For 50 lbs.

Preparation, $1\frac{1}{2}$ lb. Chrome.

Dyeing, 6 lbs. Fustic,

1 lb. Ground Madder.

$\frac{1}{2}$ lb. Cudbear.

1 lb. Tartar; and if not dark enough,

Add 8 oz. Logwood.

Boil half an hour.

No. 49.

CLARET.

For 50 lbs.

Preparation, $1\frac{1}{2}$ lb. Chrome.

Dyeing, 9 lbs. Limawood.

2 lbs. Logwood.

$\frac{1}{2}$ lb. Tartar.

Boil half an hour.

No. 50.

OLIVE BROWN.

For 50 lbs.

Preparation, $1\frac{1}{2}$ lb. Chrome.

Dyeing, 7 lbs. Fustic.

3 lbs. Madder.

1 lb. Logwood.

2 lbs. Tartar.

8 oz. Cudbear.

1 run; raise in the second with 5 or 6 oz. Blue-stone; wash well and dry.

No. 51.

COMMON DARK BROWN.

For 40 lbs.

12 lbs. Logwood.

6 lbs. Redwood.

4 lbs. Madder.

Boil half an hour, air out and repeat, then sadden with 1 lb. Copperas; if too dark, raise to pattern with Muriate of Tin.

No. 52.

RUBY.

For 50 lbs.

Preparation, 3 lbs. Tartar, and

2 lbs. Alum.

Boil half an hour, and wash in 3 warm waters.

Dyeing, 8 lbs. Limawood,

 $\frac{1}{2}$ lb. Cudbear, and $\frac{3}{4}$ lb. Tartar.

Boil half an hour, and blue to pattern with hot water.

No. 53.

PURPLE.

For 50 lbs.

Preparation, 1½ lb. Tartar, and
 1 lb. Alum; wash in 3 waters.
 Dye with 10 lbs. Logwood; boil half an hour;
 Raise with 1 quart Muriate of Tin.

No. 54.

ROYAL PURPLE.

For 50 lbs.

Blue on the Woad Vat No. 126, either warm or cold, for whatever depth of colour required; wash in 2 waters; then give 2½ lbs. Cudbear; boil half an hour, or until you get the shade wanted; if not blue enough, give another run upon the Vat.

No. 55.

PALE BLUE.

For 50 lbs.

1 gill Sulphuric Acid.

3 oz. Extract of Indigo.

1 lb. Alum.

Enter cold with one half of the Extract; give the other half when the boiler warms; bring to the spring.

No. 56.

ROYAL BLUE.

For 56 lbs.

For 1 lb.

3½ lbs.	Super-Sulphate of Tartar.	1 oz.
3½ lbs.	Prussiate of Potash.	1 oz.
2 lbs. 10 oz.	Logwood.	¾ oz.
3½ quarts	Blue Spirits, No. 144.	½ gill.
3½ pints	Muriate of Tin.	¼ do.
		[over.

Into a boiler containing 100 gallons of water, put the Prussiate and Super-Sulphate of Tartar, after being dissolved in a little boiling water; have the Logwood boiled beforehand, put it in, and one-half of the Blue Spirits; enter cool, heat up to 180° Fahrenheit, and lift; give the rest of the Blue Spirits; return and boil for a quarter of an hour; lift again, cool well and give the Muriate of Tin; return and boil 15 minutes; lift, wash, and dry.

No. 57.

WATERLOO BLUE.

For 56 lbs.		For 1 lb.
5½ lbs.	Prussiate of Potash.	1½ oz.
7 lbs.	Super-Sulphate of Tartar.	2 oz.
1½ lbs.	Logwood.	½ oz.
3½ quarts	Blue Spirits, No. 145.	½ gill.
3½ pints	Muriate of Tin.	¼ do.

Done in the same manner as No. 56.

No. 58.

ROYAL BLUE PURPLE.

For 56 lbs.

For 1 lb.

10½ lbs.	Logwood.	3 oz.
1¾ lb.	Prussiate of Potash.	½ oz.
3½ lbs.	Super-Sulphate of Tartar.	1 oz.
3½ quarts	Blue Spirits.	½ oz.
3½ pints	Muriate of Tin.	¼ oz.

No. 59.

PEA GREEN.

For 54 lbs.

2 lbs. Extract of Indigo.

7 lbs. Fustic.

1 lb. Alum.

Bring on from the cold; when the boiler heats to 180° Fahrenheit, put in the Fustic; boil 15 minutes.

No. 60.

COMMON PALE GREEN.

For 50 lbs.

3½ lbs. Extract of Indigo.

2½ lbs. Fustic.

10 oz. Tartar.

1 gill Sulphuric Acid.

Same as No. 59; give the Extract and Acid first; when at 180° Fahrenheit, put in the Fustic and Tartar; boil 15 minutes.

No. 61.

GRASS GREEN.

For 50 lbs.

Boil 20 lbs. Fustic;

7 lbs. Extract of Indigo.

1½ lb. Tartar.

3 gills Sulphuric Acid.

Done in the same manner as No. 60.

No. 62.

MYRTLE GREEN.

For 50 lbs.

For 1 lb.

25 lbs. Fustic.

 $\frac{1}{2}$ lb. $1\frac{1}{4}$ lb. Camwood.nearly $\frac{1}{2}$ oz.

5 lbs. Extract of Indigo.

 $1\frac{1}{2}$ oz.

4 lbs. Alum.

 $1\frac{1}{4}$ oz.

2 gills Sulphuric Acid.

 $\frac{1}{3}$ oz.

First, boil the Fustic and Camwood well; then add the Paste, Alum, and Acid; boil altogether a short time; enter, and boil half an hour. If done at twice, give the Extract and Acid first, then in a clean boiler give the Fustic, Camwood, and Alum; boil half an hour each time.

No. 63.

OLIVE GREEN.

For 50 lbs.

Prepare with $1\frac{1}{2}$ lb. Chrome; boil half an hour, and wash in 2 waters; then boil
12 lbs. Fustic, and

2½ lbs. Logwood, for one hour.

Enter; boil half an hour. Raise in the same liquor with 4 oz. Bluestone; wash well, and dry.

No. 64.

PEACH.

For 50 lbs.

Drench 8½ lbs. Cudbear with a little hot water; boil or scald it in 3 or 4 gallons; decant the clear liquor into a boiler containing 100 gallons water; enter cold; bring to the boil; lift and put in 1 lb. Soda, or 2 gallons Urine; return, and boil 10 minutes.

No. 65.

LIGHT PEACH.

For 50 lbs.

Prepare 4 lbs. Cudbear in the same manner as No. 64; enter cold; bring to the boil, and blue with ½ lb. Soda, or 1 gallon Urine.

No. 66.

FRENCH WHITE.

For 45 lbs.

1 lb. Cudbear; prepare in the same manner as No. 64,—4 oz. Soda, or a little Limewater.

No. 67.

DRAB.

For 50 lbs.

For 1 lb.

7 lbs. Fustic.	fully 2 oz.
8 oz. Madder.	2½ drams.
4 oz. Cudbear.	1¼ do.
2 lbs. Alum.	fully ½ oz.
8 oz. Tartar.	2½ drams.

Note.—67, 68, 69, 70, and 71, are entered between the cold and 160° Fahrenheit; after heating up, boil from 10 to 30 minutes; wash in 2 waters. All dark shades of these colours may be slightly prepared with Chrome; wash in 2 waters.

No. 68.

LIGHT DRAB.

For 56 lbs.

4 lbs. Fustic.

$1\frac{3}{4}$ lb. Alum.

4 oz. Madder.

4 oz. Tartar.

$3\frac{1}{2}$ oz. Cudbear.

See Note, No. 67.

No. 69.

FAWN.

For 50 lbs.

5 lbs. Fustic.

1 lb. Madder.

$\frac{1}{2}$ lb. Camwood.

$\frac{1}{2}$ lb. Cudbear.

2 lbs. Alum.

See Note, No. 67.

No. 70.

STONE.

For 50 lbs.

For 1 lb.

1 lb. Logwood.	5 drams.
4 oz. Fustic.	1 $\frac{1}{2}$ do.
8 oz. Extract of Indigo.	2 $\frac{1}{2}$ do.
3 lbs. Alum.	nearly 1 oz.
1 $\frac{1}{2}$ lb. Tartar.	$\frac{1}{2}$ oz.

See Note, No. 67.

No. 71.

SLATE,

For 50 lbs.

1 lb. Logwood.
8 oz. Extract of Indigo.
4 oz. Fustic.
2 lbs. Tartar.
2 lbs. Alum.

See Note, No. 67.

No. 72.

STRAW.

For 50 lbs.

Boil $3\frac{1}{4}$ lbs. Bark, and

3 oz. Cochineal. Add

$2\frac{1}{2}$ lbs. Tartar.

3 quarts Muriate of Tin.

Enter at 150° Fahrenheit; boil 30 minutes.

No. 73.

PRIMROSE.

For 50 lbs.

Boil $2\frac{1}{2}$ lbs. Bark. Add

2 lbs. Tartar.

2 quarts Muriate of Tin.

Enter at 150° Fahrenheit; boil 30 minutes.

No. 74

YELLOW.

For 40 lbs.

2½ lbs. Bark.

2 lbs. Tartar.

2 quarts Muriate of Tin.

Enter at 150° Fahrenheit; boil 30 minutes.

No. 75.

BUFF.

For 45 lbs.

Boil 4½ lbs. Fustic, and

1½ lb. Madder. Add

7 lbs. Alum.

Enter at 200° Fahrenheit; boil 30 minutes.

No. 76.

GIRAFFE.

40 lbs. Yarn; or 90 yards Moreen.

Boil 9 lbs. Fustic,
 1½ lb. Madder, and
 8 oz. Cudbear. Add
 2 oz. Alum.
 1 quart Muriate of Tin.

No. 77.

AMBER.

For 40 lbs.

Boil 4 lbs. Bark, and
 8 oz. Madder. Add
 2 quarts Muriate of Tin.
 1 lb. Tartar.
 Enter at 200° Fahrenheit; boil 30 minutes.

No. 78.

ORANGE.

For 50 lbs.

Boil 10 lbs. Bark, and
1½ lb. Cochineal. Add
2 lbs. Tartar.
2½ quarts Yellow Spirits.
Enter at 200° Fahrenheit; boil 30 minutes.

No. 79.

LILAC.

For 50 lbs.

Boil 5½ lbs. Logwood, and
2 lbs. Alum. Add
2 quarts Muriate of Tin.
Brought on from 100° Fahrenheit.

No. 80.

LAVENDER.

For 45 lbs.

Boil 2 lbs. Logwood, and

2 lbs. Alum. Add

10 oz. Extract of Indigo.

Enter cold, and bring up to the boil.

No. 81.

FRENCH GREY.

For 50 lbs.

Boil 7 lbs. Fustic, and

12 oz. Cudbear. Add

6 oz. Extract of Indigo.

1 pint Sulphuric Acid.

Cool to 180° Fahrenheit ; enter, and boil 20 minutes.

No. 82.

SILVER GREY.

For 50 lbs.

Boil 1 lb. Logwood, and

2½ lbs. Alum. Add

5 oz. Extract of Indigo.

Brought on from 100° Fahrenheit; boil 10 minutes.

No. 83.

FRENCH PINK.

For 50 lbs.

3 gills Ammonia Paste.

1¼ lb. Tartaric Acid, to Redden.

10 oz. Oxalic Acid, to Blue.

Enter at 140° Fahrenheit; heat no higher than 200°.

No. 84.

ROSE COLOUR.

For 40 lbs.

1 lb. Cochineal.

3 gills Double Muriate of Tin.

1 lb. Tartaric Acid.

Enter at 100° Fahrenheit; heat up; boil 15 minutes; lift, and cool to 120°, by throwing out part of the liquor, and filling up with water,—add

1 gill Ammonia Paste.

12 oz. Tartaric Acid.

6 oz. Oxalic Acid.

Bring up to the boil; when the desired shade is got, wash well, and dry.

No. 85.

SCARLET WITH COCHINEAL.

For 50 lbs.

For 1 lb.

Boil 4 lbs.	Cochineal, and	1 $\frac{1}{4}$ oz.
1 $\frac{3}{4}$ lb.	Bark. Add	$\frac{1}{2}$ oz.
3 lbs.	Tartar.	nearly 1 oz.
2 quarts	Scarlet Spirits.	2 oz.

Enter at 200° Fahrenheit; boil one hour; wash well.

Note—Sour Nos. 85, 86, 87, and 88, before Dyeing, either cold or warm; 1 water out.

No. 86.

SCARLET WITH LAC.

For 50 lbs.

For 1 lb.

Boil 5 $\frac{1}{2}$ lbs.	Lac, and	1 $\frac{1}{2}$ oz.
1 $\frac{1}{2}$ lb.	Bark. Add	$\frac{1}{2}$ oz.
3 lbs.	Tartar.	1 oz.
2 quarts	Lac Scarlet Spirits.	2 oz.

Enter at 200° Fahrenheit; boil one hour; wash well.

See Note, No. 85.

No. 87.

SCARLET WITH LAC AND COCHINEAL.

For 50 lbs.

For 1 lb.

Boil $4\frac{1}{2}$ lbs. Lac, and	$1\frac{1}{2}$ oz.
$1\frac{3}{4}$ lb. Bark. Add	$\frac{1}{2}$ oz.
2 lbs. Tartar.	fully $\frac{1}{2}$ oz.
2 quarts Lac Scarlet Spirits.	2 oz.

Enter at 200° Fahrenheit; boil in this 30 minutes;
lift, and wash well; then, in a boiler of clean water,

Boil 14 oz. Cochineal, and	$\frac{1}{4}$ oz.
14 oz. Tartar. Add	$\frac{1}{4}$ oz.
$1\frac{1}{2}$ pint Scarlet Spirits.	$1\frac{3}{4}$ oz.

Enter at 200° Fahrenheit; boil 20 minutes, and
wash well out.

See Note, No. 85.

No. 88.

PONÇOE.

For 50 lbs.

For 1 lb.

4 lbs. Cochineal.

1½ oz.

1 lb. Bark.

fully 5 drams.

2 lbs. Tartar.

nearly 1 oz.

2 quarts Scarlet Spirits.

2 oz.

Enter at 200 Fahrenheit; boil 1 hour, and wash well.

See Note, No. 85.

No. 89.

CRIMSON.

For 50 lbs.

Drench 4 lbs. Cudbear.

Boil half an hour; raise with 5 gills Sulphuric Acid in another boiler, or large tub, full of warm water; wash well, and dry.

No. 90.

LIMAWOOD CRIMSON.

For 50 lbs.

Prepare with 2 lbs. Alum, and

$\frac{1}{2}$ lb. Tartar.

Boil half an hour; wash in 3 warm waters.

Boil 11 lbs. Limawood, and add

$\frac{1}{2}$ lb. Cudbear.

Boil in this for half an hour, and blue with warm water.

No. 91.

FAST CRIMSON.

For 50 lbs.

$6\frac{1}{4}$ lbs. Cochineal.

$\frac{1}{2}$ lb. Cudbear.

Boil in this three quarters of an hour; raise with 2 quarts Crimson Spirits; boil a quarter of an hour; lift, wash well, and dry.

No. 92.

COCHINEAL CRIMSON.

For 50 lbs.

3½ lbs. Cochineal.

2½ lbs. Tartar.

2 quarts Crimson Spirits.

Boil half an hour; wash well; blue with Soda.

SECTION III.

COTTON DYEING.

No. 93.

BLACK.

For 40 lbs.

Boil or scald 10 lbs. Sumach; lay the cloth or yarn in this for 18 hours; wring out; run through Acetate of Iron, 4° Twaddell; 4 turns, or for half an hour; wring out; repeat and wash well in 3 waters; then boil 25 lbs. Logwood and 3 lbs. Fustic; put off the boil and enter; or the clear of the liquor may be decanted into another dish; 1 run, continue half an hour; wring out; repeat; sadden with 1 lb. Copperas; 2 runs; wash and dry.

In Job Dyeing, for a piece cloth 20 yards, prepare in strong hot Sumach like the above, then put 3 quarts

slacked Lime into 20 gallons water; when the Lime precipitates, decant the clear into another tub, lift the cloth out of the Sumach, give 1 run through Acetate of Iron, 1 through Lime, repeat in the Iron, and again through the Lime. Should the cloth have got unlevel, give an extra run through the Lime to make it level; then wash in 2 waters, and give Logwood and a little Fustic, like the above.

No. 94.

FAST BLACK.

For 50 lbs.

Dark Blue on the Vat No. 316; lay then in 18 lbs. hot Sumach for 24 hours; lift, and sadden with Black Iron Liquor; wash and dry.

No. 95.

BROWN.

For 50 lbs., or 200 yards.

Prepare with $2\frac{1}{2}$ lbs. Sumach,

Acetate of Iron, 2° Twad., and

Lime, 1° Twaddell.

Dye with 18 lbs. Redwood, and

4 lbs. Fustic.

24 hours in the Sumach; lift and run through the Iron tub, then through the Lime; repeat in each tub, and wash in 3 waters; then scald or boil the wood; decant into another tub; enter and winch for 20 minutes; air out, and repeat; if not dark enough, add a little Logwood; then sadden with 6 or 8 oz. Copperas.

No. 96.

MADDER BROWN.

For 40 lbs.

Boil or scald 10 lbs. Sumach; lay the goods in it for 24 hours; lift and decant into a tub, containing

60 gallons Water,

1 quart Acetate of Iron, and

1 quart Mordant.

Enter ; turn for half an hour ; lift, and wash in 2 waters ; then dye with 10 lbs. best Crop Madder ; enter cold, and bring to the spring.

No. 97.

DARK FAST BROWN WITH CATECHU.

For 200 yds.

Boil 30 lbs. Catechu ; enter the Cloth as it leaves the Singeing-work ; winch it in the Catechu for some time, and let it down into the boiler all night ; in the morning light a fire under the boiler ; lift the Cloth, and give 2 runs through Acetate of Iron ; wash well out of the Iron ; have the boiler up, and give another run through it at the boil, 1 hour ; lift, and give other 2 runs of Iron, when it will be quite black ; stripe with Lime to the shade required.

No. 98.

LIGHT FAST CATECHU BROWN.

For 50 lbs.

Boil 20 lbs. Catechu in one boiler.

5 lbs. Chrome in another.

Enter in the Catechu first; work 20 minutes, and wring out; then through the Chrome, 10 minutes, and wring out; through Catechu again; giving shot about till dark enough; finishing with Catechu.

No. 99.

CLARET.

For 50 lbs.

For 1 lb.

Preparation	{	12½ lbs.	Sumach.	4 oz.
			Spirit tub, 3° Twad.	

Dyeing,	{	15½ lbs.	Limawood.	4 oz.
		2 lbs.	Logwood, to blue.	¾ oz.

Raising,	1	quart Red Spirits, No. 150.
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48 hours in the Sumach; work 1 or 2 hours in the Spirit tub; wash out of it in 3 waters; boil the Limawood and Logwood; decant into a large tub; winch 30 minutes; lift, and give the raising; enter again for 15 minutes; lift, wash, and dry.

No. 100.

LIGHT CLARET.

For 50 lbs.

For 1 lb.

Preparation	{	11 lbs.	Sumach.	3½ oz.
			Spirit tub 2° Twad.	
Dyeing,	{	9½ lbs.	Limawood.	3 oz.
		1¼ lb.	Logwood.	½ oz.
Raising,		1½ pint	Spirits. No, 150.	

Wrought the same as No. 99.

No. 101.

RUBY.

For 50 lbs.

Preparation	{	12½ lbs.	Sumach.	
			Spirit tub, 3° Twad.	
Dyeing,	{	12½ lbs.	Limawood.	
		1 lb.	Logwood, to blue.	
Raising,		1 quart	Red Spirits, No. 150.	

Wrought like No. 99.

No. 102.

LIGHT RUBY.

For 50 lbs.

Preparation	{	11 lbs. Sumach.
		Spirit tub, 2° Twad. 1 hour.
Dyeing,	{	9½ lbs. Limawood.
		12 oz. Logwood.
Raising,		1½ pint Red Spirits, No. 150.
		Wrought like No. 99.

No. 103.

PURPLE.

For 50 lbs.

Preparation	{	12½ lbs. Sumach.
		Spirit tub, 2½° Twad.
Dyeing,		15 lbs. Logwood.
Raising,		1 quart Purple Spirits, No. 151.
		Wrought like No. 99.

No. 104.

LIGHT PURPLE.

For 50 lbs.

Preparation { 11 lbs. Sumach.
 Spirit tub, 2° Twad. 1 hour.
Dyeing, 11½ lbs. Logwood.
Raising, 1½ pint Purple Spirits, No. 151.
 Wrought like No. 99.

No. 105.

SCARLET.

For 40 lbs.

Preparation { 16 lbs. Sumach.
 Spirit tub, 3° Twad.
Dyeing, { 24 lbs. Limawood.
 3½ lbs. Turmeric.
Raising, 6 lbs. Alum.

After lying in Sumach 24 hours, lift, and winch it in the Spirit tub; wash well out; boil the wood; decant the clear liquor into a large tub; enter, and winch for 30 minutes; then raise with Alum.

No. 106.

CRIMSON WITH COCHINEAL.

For 50 lbs.

Prepare with 15 lbs. Sumach, and

10 lbs. Alum.

Dye with $6\frac{1}{4}$ lbs. Cochineal.

24 hours in the Sumach; lift; make up a hot solution of Alum; winch in that 2 or 3 hours; lift; wash in 2 waters; then boil the Cochineal; put off the boil; enter, and winch till full enough; then wash and dry.

No. 107.

LIMAWOOD RED.

For 40 lbs.

10 lbs. Sumach.

Spirit Vat, $2\frac{1}{2}^{\circ}$ Twaddell.

12 lbs. Limawood.

1 quart Red Spirits.

After being prepared with Sumach, winch it in the Spirit Vat for 2 hours; lift, and wash well in 3 waters; boil or scald the Limawood; decant the clear liquor into another vessel; enter, and winch in this for 30 minutes; lift, and raise in the same liquor, with 1 quart of Red Spirits.

No. 108.

BARWOOD RED.

For 40 lbs.

10 lbs. Sumach.

Spirit Vat, $2\frac{1}{2}^{\circ}$ Twaddell.

40 lbs. Barwood.

1 quart Red Spirits.

Done in the same manner as No. 107.

No. 109.

DRAB.

For 40 lbs.

Boil 6 lbs. Fustic.

Scald $2\frac{1}{2}$ lbs. Limawood.

2 lbs. Sumach.

Decant into a wooden vessel, capable of containing 100 gallons; reduce with cold water to handling heat; enter; 6 turns; wring out; sadden with 8 oz. Copperas; 4 turns; wring out again, and give 4 oz. Bluestone.

No. 110.

FAWN.

For 50 lbs.

Boil 5 lbs. Fustic, and
 3 lbs. Limawood. Add
 2 lbs. Alum.

Decant the Fustic and Limawood into a large tub ;
 reduce to handling heat ; enter and work 15 minutes ;
 if not dark enough, add 8 oz. Logwood ; then wash
 and dry.

No. 111.

STONE.

For 50 lbs.

Boil 4 lbs. Fustic.
 2 lbs. Limawood.
 2 lbs. Madder.

Decant and work in this 15 minutes ; air out and
 repeat ; lift, and add 4 or 6 oz. Copperas ; enter again,
 and work till you get the required shade ; then wash
 and dry.

No. 112.

LAVENDER.

100 yards.

Scald 1 lb. Logwood, and
2 lbs. Sumach.

Decant both into a tub of sufficient size ; cool to 150° Fahrenheit ; add 2 gills Vitriol ; winch in this 20 minutes ; lift and run slightly through Acetate of Iron ; wash in 2 waters, then give 1 lb. Logwood as before ; raise with a pint of Muriate of Tin ; wash in 2 waters ; then, in a tub of cold water, put 4 oz. Extract of Indigo ; enter, and winch in this 15 minutes ; lift, give 1 water, and dry.

No. 113.

LILAC.

100 yards.

Scald 1½ lb. Logwood.
2 lbs. Sumach.

Decant, and work like the last ; sadden, and top with Logwood ; raise with Muriate of Tin.

No. 114.

PINK.

For 30 lbs. Yarn, or 250 yards Cloth.

*Bleed 7 lbs. Safflower in 50 gallons soft water.

Dissolve 2 lbs. Tartar in 3 gallons hot water; enter the Yarn in the Safflower, and give 4 turns; lift, and put in one half of the Tartar; enter; 4 turns more; lift again, and put in all the Tartar, and work in it till you get the required shade.

* For bleeding Safflower, see No. 32.

No. 115.

PALE BLUE.

For 50 lbs.

For 1 lb.

2½ lbs. Prussiate of Potash.

¾ oz.

Nitrate of Iron, 3° Twad.

1 pint Vitriol.

1½ oz.

Turn in the Iron tub 20 minutes; lift; run through cold water (not rinsed), wring up; shake well out; dissolve the Prussiate into 100 gallons

water; enter, and winch 15 minutes; lift, and give 2 gills Vitriol; return for 10 minutes; lift, and run through water; again through the Iron tub; repeat in the Prussiate; raise again with Vitriol, and when the required shade is got, lift; 1 water, and finish out of a weak solution of Alum.

No. 116.

ROYAL BLUE.

Run upon the cold Vat, No. 128; air out; wash in 2 waters, and sour; then give a run through the Iron (nitrate) tub; 1 water, and top with Prussiate of Potash, $\frac{1}{2}$ an ounce to the pound of yarn.

Note.---If the Vat is not in good order, or without that convenience, better do this colour with Prussiate altogether.

No. 117.

MAZARINE BLUE.

Make it a good dark Blue on the Vat, No. 128; wash in 2 waters; sour warm; then run through Nitrate of Iron; 2 waters, and top with $\frac{1}{4}$ oz. Prussiate to the pound of yarn.

No. 118.

ORANGE.

For 40 lbs.

For 1 lb.

2 $\frac{1}{2}$ lbs. Annatto.

1 oz.

24 lbs. Bark.

9 oz.

3 quarts Muriate of Tin.

fully $\frac{1}{2}$ gill.

Boil the Annatto; put off the boil; enter, and winch till it has a good body; wring out, wash well, wring again, and shake out; then, in a clean boiler, boil the Bark in a bag for 15 minutes; add the Muriate of Tin, and enter; winch at the spring till the required shade is got.

No. 119.

ORANGE YELLOW.

For 50 lbs.

For 1 lb.

Bottoming,	1½ lb.	Annatto.	nearly ½ oz.
Dyeing,	{ 5 lbs.	Bark.	½ oz.
	{ 3 quarts	Muriate of Tin.	½ gill.

Give the Annatto boiling hot; wash in 2 waters; boil the Bark, and add the Muriate of Tin; enter; winch 20 minutes, then wash and dry.

No. 120.

CHROME YELLOW.

For 50 lbs.

For 1 lb.

10 lbs. Acetate of Lead.	3 oz.
5 lbs. Chrome.	1½ oz.

Dissolve separately, and put each into a tub containing 100 gallons water; enter in the Lead first, 4 or 5 turns; wring out; then through Chrome; continue from the one to the other till dark enough.

No. 121.

OLIVE.

For 50 lbs.

10 lbs. Bark.

2 lbs. Logwood.

8 oz. Bluestone.

Boil the Bark in a bag; put off the boil, and enter; winch 20 minutes; lift, and put in the Bluestone; return for 10 minutes; lift and wash in 2 waters, and top; give the Logwood in another dish; when dark enough, wash and dry.

No. 122.

BUFF.

Give Nitrate of Iron, 6° Twaddell, 150° Fahrenheit; winch in this till full enough, then lift; give 2 waters; raise in a solution of Lime, 1° Twaddell; if not dark enough, repeat in the Iron tub, then in the Lime.

No. 123.

GREEN.

For 40 lbs.

Preparation,		Nitrate of Iron, 4° Twad.
	1½ lb.	Prussiate of Potash.
Dyeing,	45 lbs.	Fustic.
	8 oz.	Extract of Indigo.
Raising,	1 pint	Vitriol.
	5 lbs.	Alum.

Turn in an Iron tub for 20 minutes ; wring out ; run through cold water lightly, wring and shake well out ; dissolve the Prussiate ; put it into a tub of cold water, 4 or 5 turns ; lift, and give 2 gills Sulphuric Acid ; 4 or 5 turns more ; run through cold water, and wring out ; repeat in the Iron and Prussiate tubs as before dyeing ; give the Fustic moderately warm in a clean liquor ; winch 30 minutes ; dissolve, and add 5 lbs. Alum, and 6 lbs. Extract of Indigo ; winch in this till you get the required shade.

No. 124.

FAST CHROME GREEN.

For 56 lbs.

For 1 lb.

10½ lbs. Chrome.

3 oz.

5 lbs. Acetate of Lead.

1½ do.

Blue on the Vat, No. 128; wash in 2 waters, and give a warm sour; then dissolve, and put the Lead and Chrome into separate tubs like No. 118; enter in the Lead tub first; wring out; then through the Chrome; continue from the one to the other till dark enough.

No. 125.

NEW METHOD FOR DYEING BLUE & GREEN.

For 50 lbs.

Boil 10 lbs. Ground Logwood.

Dissolve 8 oz. Verdigris, and

4 oz. Alum, together.

Enter in the Logwood; boil 1 hour; wring out; put in the Verdigris and Alum; enter again; boil 1

hour; air out; repeat three times; after which dry it, then boil with a pound of Soap; 1 water out of the Soap, and it is finished. The above will dye 50 lbs. of yarn a good deep Blue; after which put in as much more yarn into the same liquor, work it as before, and it will make a good pale Blue; or boil Hickory Bark, and it will make a good Green.

SECTION IV.**VATS FOR VARIOUS COLOURS.**

No. 126.

WOAD VAT.

250 galls. Water, 170° Fahrenheit,—put in
150 lbs. Best English Woad, well chopped ;
9 lbs. Best Indigo, well ground ;
2½ lbs. Madder,
2½ lbs. Bran.

Rake altogether well up, and the Vat ought to assume a Green appearance ; in 12 or 14 hours, dip a piece of cloth, or a little wool, into the Vat ; if it dye Green, it will turn Blue by exposure to the air ; rake up, and if it holds the head well up, put in 1 quart of Quick Lime, and rake again ; in 3 hours after,

rake again, and if it looks of a Greenish Yellow, put in $1\frac{1}{2}$ quart more of Lime; in 3 or 4 hours after, rake again; if the Vat looks Yellower, use another quart of Lime; in an hour after this, if it smells slightly of Lime, it has enough; if it smells strongly of Lime, it has too much, which may be counteracted by using $1\frac{1}{2}$ or 2 lbs. of Madder, or by heating the Vat; when the liquor is hard, it is of an Orange colour, which may be seen by blowing; when it is soft, it appears faint Yellow, and throws up a scum. In serving or heating the Vat, it should be raked occasionally, taking care not to disturb the sediment, but merely to bring the liquor to an equal degree of heat; then put in 3 lbs. of Indigo, and $1\frac{1}{2}$ lb. of Madder; allow it to settle for 12 hours; then, if it looks of a Greenish colour, and does not smell of Lime, use 1 quart of Lime. In all cases, if the Vat smells slightly of Lime, it is a proof that it has enough; if it smells very strongly of Lime, give $1\frac{1}{2}$ lb. of Potash, and 2 lbs. Madder; then, if it smells of Lime instead of Wood, cool by taking off the covering, and a considerable quantity of the Lime will evaporate; heat up again, and put in 30 or 35 lbs. of Wood; when hot, rake well up; look at the Vat in 6 or 8 hours, if the upper part of the liquor looks

Yellow, rake up, and if it does not darken, use 2 quarts Lime: when you rake up, stir the bottom at all times, except when heating up; 3 hours is long enough for a Wood Vat to settle.

In dyeing Silk or Cotton on this Vat, it is safest to work it cold, or at most lukewarm.

No. 127.

ASH VAT, WOOLLEN.

400 galls. Water,—heat to 170° Fahrenheit.

5 lbs. Ground Indigo.

10 lbs. American Potash.

3 lbs. Madder.

4 lbs. Bran.

Apply a slow fire, and it will come to fermentation in 14 or 16 hours; then add 1 or 2 lbs. Madder. In renovating this Vat, use more Potash in proportion to your Indigo, than in setting a new Vat.

No. 128.

BLUE VAT, COTTON.

140 galls. Water.

16 lbs. Copperas.

8 lbs. Ground Indigo.

16 lbs. Quick Lime.

Rake up occasionally for 5 or 6 hours, till all the Copperas be dissolved; if the Vat be of a Greenish Yellow colour, consider it in good order; if it assumes a dark Green colour, it shows a deficiency of Lime; if Yellowish, it is short of Copperas; after raking, allow 12 hours to settle before working; renovate with Copperas and Lime, according to the state of the Vat.

No. 129.

PURPLE VAT.

Boil 1 cwt. of the best Logwood in 30 gallons of water for 3 or 4 hours, when it will be reduced to 26 gallons; decant the clear liquor into a wood or stone vessel; let it stand till quite cold, and add 56 lbs. Spirits (see No. 136), 7° Twaddell. In renovating this Vat, it is made up with raw Muriatic Acid till the glass stands as high as when set.

No. 130.

CRIMSON VAT.

Boil 1 cwt. Limawood; decant it in the same manner as the last, and add 56 lbs. Spirits; renovate with killed Spirits, 7° Twaddell (No. 137).

No. 131.

LAVENDER VAT.

50 lbs.

Boil 14 lbs. Logwood in 10 or 12 gallons water; decant the clear into a 60 gallon tub containing 40 gallons water; when it is quite cold, add 45 lbs. Spirits (No. 138); rake up occasionally for 3 or 4 hours; next day it will be fit for working, and the glass will stand at 6° Twaddell. This will dye Lilac; add neutralised Paste for Lavender. Renovate with raw Muriatic Acid till the glass stands at 6°.

No. 132.

ROSE PINK VAT.

Boil $1\frac{1}{2}$ lb. of Limawood in 3 gallons water; decant the clear into a tub containing 20 gallons water, and add 5 quarts double Muriate of Tin; the hydrometer will stand at 7° Fahrenheit; renovate with double Muriate of Tin.

SECTION V.

SPIRITS FOR SILKS, WOOLLEN, AND COTTON.

SILK SPIRITS.

No. 133.

NITRO-SULPHATE OF IRON.

2 galls. or 30 lbs. Double Aquafortis.

24 lbs. Copperas.

Put the Aquafortis into a leaden or stoneware pot ; place it near a fire, and add the Copperas at 3 or 4 times ; if without the convenience of a fire, put in a quart of hot water with the first of the Copperas.

No. 134.

NITRATE OF IRON.

2 galls. Aquafortis.

5½ lbs. Old Iron.

Put this into a 6 gallon pot; add the Iron by degrees; and keep it warm, like the last.

No. 135.

SCARLET.

3 lbs. Muriatic Acid.

3 lbs. Pure Double Nitric Acid; add 2 oz. Salamoniac, and feed with 1½ lb. Granulated Tin.

No. 136.

PURPLE VAT SPIRITS.

4 galls. (54 lbs.) Marine Acid.

1½ galls. (20 lbs.) Nitric Acid.

Kill with 3½ lbs. Granulated Tin; ¾ oz. per pound.

No. 137.

CRIMSON VAT SPIRITS.

3 galls. Muriatic Acid.

2 galls. Nitric Acid.

2 oz. Salammoniac,—feed with $3\frac{1}{2}$ lbs. Tin.

No. 138.

LAVENDER.

30 lbs. Muriatic Acid.

15 lbs. Double Nitric Acid.

Kill with 3 lbs. Granulated Tin; nearly 1 oz. per pound.

No. 139.

MURIATE OF TIN.

Give any quantity of Muriatic Acid as much Tin as it can consume; you will know when it has enough, by seeing Tin lying undissolved at the bottom of the pot.

No. 140.

DOUBLE MURIATE OF TIN

Requires twice as much Tin as the last; it may be made by heating common Muriate of Tin in a stone-ware pot, placed in a hot sand-bath, and giving as much Tin as it can consume.

No. 141.

YELLOW.

20 lbs. Double Muriatic Acid.

10 lbs. Single Sulphuric Acid.

Pour the Sulphuric Acid into the Muriatic carefully, and let them stand for some time, till the gas goes off; then give as much Tin as they can consume slowly, not to fire them.

Note.—These, and Nos. 149 and 151, are not much used now, and are only given here to show how they are made; Muriate of Tin answers almost every colour these are used for.

No. 142.

EXTRACT OF INDIGO.

1 lb. Best Ground Indigo.

6 lbs. Double Vitriol.

Mix together; let stand 48 hours in a stone pot; then put the vessel into a warm bath till properly dissolved; take 6 gallons water, 170° Fahrenheit; add the Indigo slowly, then filter through woollen cloth, covered with brown paper, into a wooden vessel; what remains on the paper put away, as it is only earth; then add your liquor.

4 lbs. Common Salts.

1 lb. Pearl Ash.

Note.—Let it stand till it ceases fermenting, then filter again through brown paper, and what remains on the paper is pure Extract of Indigo; there should be 12 lbs. of it.

No. 143.

AMMONIA PASTE.

1 quart Strong Ammonia.

1 do. Water.

2 lbs. Ground Cochineal.

Stir them all well together in a stone pot; tie up the mouth of it tightly, and set it in some warm place, such as the flue of a stove, for two days, and it will be fit for use.

WOOLLEN SPIRITS.

No. 144.

ROYAL BLUE.

2 quarts Muriatic Acid.

1 do. Nitric Acid,---no Tin.

Before using, let it stand until the gas goes off.

No. 145.

WATERLOO BLUE.

3 quarts Nitric Acid.

5 do. Muriatic Acid.

1 lb. Saltpetre.

No. 146.

SCARLET SPIRITS.

Put any quantity of Nitric Acid, and the same of clear water, into a stoneware pot; the water first; then add 1 lb. Muriatic Acid to every 5 lbs. of the above, and give 2 ounces of Tin to the lb. of Spirits, adding it very slowly, for two or three days, because it is very apt to fire them, which precipitates the Nitric Acid, and you lose the Spirits.

No. 147.

CRIMSON SPIRITS

Are the same as No. 145, but have more Tin dissolved in them; give as much as they will take, till they turn of a blueish colour.

No. 148.

LAC SCARLET.

3 galls. Muriatic Acid.

2 galls. Water,—feed with 6 lbs. of Tin.

1 gall. Nitric Acid.

No. 149.

PURPLE SPIRITS.

1 gall. Muriatic Acid,—feed with

2 lbs. Granulated Tin.

Or an ounce to every gill.

No. 150.

COTTON SPIRITS.

RED.

For 50 lbs.

40 lbs. Muriatic Acid.

10 lbs. Nitric Acid; carefully and slowly killed
with $9\frac{1}{2}$ lbs. of Tin, or 3 oz. of Tin to the lb.

No. 151.

PURPLE.

2 quarts Muriatic Acid,—feed with

 $1\frac{1}{2}$ lb. Tin,Or $1\frac{1}{2}$ ounces to the gill.

SECTION VI.**HOW TO FILL UP SHOTS.**

No. 152.

BLACK.

Before dyeing Orleans, Coburgs, &c., prepare in strong Sumach for at least 8 or 10 hours; lift, sadden with Copperas or Acetate of Iron, 2 waters; then prepare with Chrome, and dye like No. 44; boil 3 lbs. Fustic for every piece of 20 yards; decant the clear liquor into a tub; reduce to 60°; enter, winch 15 minutes; lift, and add $\frac{1}{2}$ an ounce Bluestone; enter again for 10 minutes, then lift, wash, and dry.

No. 153.

BROWN.

For 20 yards.

2 lbs. Redwood.

1 lb. Fustic.

Prepare in Sumach; sadden, and wash in 2 waters; then boil or scald the wood; decant the clear liquor into another dish; enter, and winch till you get the shade required.

No. 154.

CRIMSON.

For 20 yards.

Prepare in Sumach; let lie in Spirit tub, 1° Twaddell, 1 hour; wash in 2 waters; scald 2 lbs. Limewood; decant the clear; enter, and work 15 minutes; lift, add 1 gill Muriate of Tin, or Red Spirits; return, and work for 10 or 15 minutes; then lift, wash, and dry.

No. 155.

RUBY.

For 20 yards.

After being prepared in Sumach, saddened and washed, lay it in Mordant, 2° Twaddell, for 30 minutes; lift, and wash in 2 waters; then give 2 lbs. Limawood, and 3 oz. Logwood; raise with 2 gills Mordant.

No. 156.

CLARET.

Same as the last, but give as much more Logwood to blue.

No. 157.

PURPLE.

For 20 yards.

Prepare in Sumach; sadden and wash; then give 1½ lb. Logwood; raise with 1 gill Muriate of Tin.

No. 158.

GREEN.

For 20 yards.

Blue on the Vat, No. 130; 1 water out; sour warm; give 2 waters out of the sour; then lay it in Mordant, 1° Twaddell, 1 hour; lift; wash in 2 warm waters; then scald 1 lb. Barks; decant; work in this 15 minutes; lift, and raise with 1 gill Mordant.

FINIS.

